

New Books . . .

Advances in Agronomy, Vol. VI

A. G. NORMAN, EDITOR. xi + 383 pages. Academic Press Inc., 125 East 23rd St., New York 10, N. Y. 1954. \$8.50. Reviewed by M. S. ANDERSON, Agricultural Research Service, USDA, Beltsville, Md.

Volume VI of this series follows the general pattern of the earlier issues. The nine chapters are by different authors. Widely varied features of crop and soil science are included. A few paraphrased statements indicate the character of the subject matter:

The evapotranspiration, or consumptive use of water, is greatly influenced by soil moisture level under which a crop is produced. Water use decreases as the soil fertility level increases.

A Midwestern philosophy of land use calls for maximum crop production per acre with a minimum of soil deterioration. It is based on the concept that high production is good for the soil, and that minimum tillage promotes soil tilth and conserves organic matter. A trash mulch is one way to provide protection against erosion.

The Vitamins, Volume III

W. H. SEBRELL AND ROBERT S. HARRIS. 665 pages. Academic Press. \$16.50. Reviewed by C. A. ELVEHJEM, University of Wisconsin, Madison, Wis.

THE three-volume series on "The Vitamins—Chemistry, Physiology, Pathology" is now complete with the publication of the third volume. This series is the most comprehensive publication so far attempted on this subject and will certainly stand as a classic regardless of future publications. It is evident that the entire series was carefully planned and that the plans have been thoroughly executed. Each contributor is not only well qualified to cover the subject assigned, but each has presented his material in excellent form.

This volume covers *p*-aminobenzoic acid, pteroylglutamic acid, pyridoxine and related compounds, riboflavin, thiamine, the tocopherols, and a chapter on new and unidentified growth factors. Twenty-three different investigators have contributed.

One might write a book on the evolution of the nomenclature used for the group of chemical compounds which function as vitamins. Those who have written the introduction to each chapter on nomenclature in this series are to be

When compounds of trace elements are used for correcting plant deficiencies the neutral salts, usually basic sulfates, have been found to be suitable for foliar treatment; soluble sulfate salts are best for soil applications.

The chapter dealing with potassium in plant nutrition provides a review that will be helpful to many readers.

Plant breeding has an important place in this volume. A study of hybrid corn development in Mexico is discussed as a part of our international collaboration program. Sorghums present widely differing plant characteristics that are intriguing to the breeder of hybrid plants. Flaxseed improvement depends much upon development of varieties with greater disease resistance.

All of the chapters are well written and are interesting. The book deserves a place in the library of one who is interested in varied phases of agronomy. The only criticism the reviewer wishes to offer is that subject matter seems a bit too diverse for inclusion in one volume.

commended on the simple and concise manner in which the pertinent points are covered. Incidentally it is interesting to observe that the title for chapter 13 is "Pteroylglutamic Acid," in spite of the fact that a joint committee on nomenclature has recommended the term "folacin" and that several different compounds are discussed in this chapter including citrovorum factor. In contrast chapter 14 is entitled "Pyridoxine and Related Compounds." Dr. Cheldelin has demonstrated real courage in attempting to cover the new and unidentified growth factors. It is interesting to consider the variety of biological effects which are considered in this chapter. They include bacterial growth factors, the meal worm factor, the guinea pig antistiffness factor, etc. One question might be raised regarding coenzyme III since I know of no specific growth effect demonstrated in relation to this compound. Table I listing additional unidentified factors is most complete as well as interesting and valuable.

Certainly anyone interested in vitamins will find complete information in this series. The only question which one might raise is "should we ask a student taking a course in vitamins to purchase this series at a total cost of almost \$50."

The Infra-Red Spectra of Complex Molecules

L. J. BELLAMY. xvii + 323 pages. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 1954. \$7.00. Reviewed by F. A. GUNTHER, University of California Citrus Experiment Station, Riverside, Calif.

Infrared spectroscopy is being employed to an ever increasing extent in agricultural research [e.g., see J. AGR. FOOD CHEM., 1, 1176 (1953)], with major emphasis upon the quantitative features at the present time. For example, in the pesticide residue field there are in use—in those residue laboratories properly equipped—infrared methods for at least a dozen different pesticides; infrared techniques are even more widely used in the production and formulation control of pesticides.

Bellamy has prepared a valuable reference book designed to review critically the available data upon which infrared correlations are based, and this aim has been met admirably. Following the general lines of such correlation charts as the well-known Colthup chart of group frequencies, Bellamy had divided his book into four parts: vibrations of C-C and C-H linkages (58 pp.), vibrations involving mainly C-O and O-H linkages (80 pp.), vibrations involving mainly C-N and N-H linkages (64 pp.), and vibrations involving other elements (53 pp.). In line with the times, he has employed wave numbers rather than wave lengths throughout his book, which, incidentally, represents the first adequate text covering the complete field of the empirical interpretation of infrared spectra as based upon much of his own extensive data as well as upon 865 literature citations through the 1953 literature. Numerous selected detailed spectra have been included to illustrate some of the correlations discussed in text.

Of interest to pesticides people are the inclusion of mention of infrared data for anabasine, azobenzene, dimefox, carbon disulfide, chloropicrin, parathion, *beta*-BHC, HCN, methyl bromide, pentachlorophenol, and zinc diethyldithiocarbamate.

This book is well organized, attractively printed, and appears to contain very few typographical errors (this reviewer is not up to the task of casually "reading" this book in its entirety; those sections of interest which have been studied appear to be error-free). It will prove to be a necessary companion to everyone interested in [predicting and] interpreting infrared spectra.